

**REMARKS**

5       The second paragraph of the specification section entitled "Summary of Invention" is being replaced merely to correct a grammatical error. No new material has been introduced.

**Examiner:**

10       Claims 4-7 are objected to because of the following informalities: it appears that the claim 4 should be dependent on claim 3, not claim 1 because claim 4 lines 1 and 2 recites the limitation, "the optical emitter and the optical receiver," which are recited in claim 3 but  
15       not in claim 1. Appropriate correction is required. Claims 5-7 are dependent on claim 4, and thus inherently contain the deficiencies thereof.

**20    Response:**

      The limitations of claims 4 and 5 have been incorporated into claim 1, the limitations of claim 7 have been incorporated into a new claim 10, and claims 4, 5, and 7 have been cancelled.

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      Claim 6 has been amended to depend on the amended claim 1 which comprises the necessary antecedents. No new matter has been introduced. The applicant believes that all originally filed claims 4-7 either have now been cancelled  
30       (claims 4,5,7) or contain no informalities (claim 6). Therefore, reconsideration of the claim objections cited by the examiner is respectfully requested.

## Examiner:

5           Claims 1-4 and 6 are rejected under 35 U.S.C. 102(e)  
as being anticipated by Jones et al. (U.S. patent 6,347,954  
B1).

10           Regarding claim 1, Jones et al disclose an optical  
transceiver module comprising a housing (1), a connector  
(3) for connecting with the housing, an optical sub assembly  
(41, 42) installed within the connector (3) for receiving  
or emitting optical signals, a printed circuit board (5)  
15           installed within the housing and a clipping device (33)  
disposed within the housing for fixing the optical sub  
assembly to electrically connect the sub assembly with the  
printed circuit board (see column 5 line 64 to column 6  
line 3).

20           Regarding claim 2, Jones et al's clipping device is a  
hook that is inserted into an opening (500) of the printed  
circuit board (see column 5 lines 4-7).

25           Regarding claim 3, Jones et al disclose a fiber connector  
27, which is connected with two fiber cables 28 and 29,  
connected to the optical emitter and receiver (see column  
6 lines 29-32).

30           Regarding claim 4, Jones et al disclose the laser diode  
and the photo diode having a plurality of pins (411, 421)  
disposed in guiding slots so as to electrically connect  
the printed circuit board (see column 5 lines 54-60).

Regarding claim 6, Jones et al disclose that the pins are soldered onto the printed circuit board (see column 6 lines 1-3).

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Response:

In section 7 of the above cited office action, the examiner has stated that claims 5 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The applicant has amended claim 1 to include the limitations of claims 1,3,4, and 5 as instructed by the examiner and believe that the amended claim 1 is now allowable. No new material has been introduced.

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Because the allowability of claims 2 and 6 ultimately depends on the allowability of their base claim 1 and claims 3 and 4 have been cancelled, the applicant respectfully requests reconsideration of the cited rejection under 35 U.S.C. 102(e).

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Examiner:

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al.

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Since Jones et al teach that the clipping device is made of insulative material and plastic is a well known

insulative material, it would have been obvious to one with ordinary skill in the art at the time the invention was made to use a well known plastic insulative for Jones et al's clipping device.

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## Response:

Claim 8 has been amended to include the word "plastic" preceding the word "material". This is merely to correct an error that occurred during formatting and transmission of the original application. The plastic limitation is supported in line of Paragraph 29 of the specification. No new material has been introduced.

Since the allowability of claim 8 ultimately depends upon the allowability of the newly amended claim 1, reconsideration of the rejection of claim 8 under 35 U.S.C. 103(a) is respectfully requested.

20 Examiner:

Claims 5 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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## Response:

As stated above, the limitations of claim 5 and intervening claims 3 and 4 have been incorporated into the base claim 1 and claims 3, 4, and 5 have been cancelled. No new material has been added. Therefore, the applicant respectfully requests reconsideration and allowance of the amended claim 1.

Additionally, the limitations of the original base claim 1 and intervening claims 3 and 4 have been combined with the limitations of claim 7 and introduced as a new independent claim 10 and claim 7 has been cancelled. No new material has been introduced. Therefore, the applicant respectfully requests consideration and allowance of the new independent claim 10.

#### Introduction of new claims 9-16

New claim 9 is reproduced here for convenience.

9. (New) The transceiver module of claim 1 wherein each guiding slot comprises a plurality of nonconductive channels, each channel for guiding one of the pins to a predetermined position to connect to the printed circuit board.

Claim 9 is dependent on amended claim 1 and fully supported in Fig.11 and paragraphs 28 and 29 of the specification where the clipping device is described as being plastic and comprising guiding slots, each guiding slot having channels for guiding the pins of the optical emitter and the optical receiver through the channels to achieve an ideal predetermined position to connect to the PCB. No new material has been introduced. Consideration and allowance of new claim 9 is therefore respectfully requested.

As described above, new independent claim 10 comprises

the limitations of claim 7, the original base claim 1, and intervening claims 3 and 4. No new material has been introduced. The examiner has stated that this combination would be allowable. Therefore, consideration and allowance of new claim 10 is respectfully requested.

New claim 11 is dependent on new independent claim 10 and is very similar to new claim 9 and supported similarly. No new material has been introduced. Therefore, consideration and allowance of new claim 10 is respectfully requested.

New independent 12 is reproduced here for convenience and supported in Paragraphs 28 and 29 of the specification.

12. (New) A transceiver module for a fiber optic communications system comprising:  
a housing;  
a connector for connecting with the housing;  
a printed circuit board installed within the housing for processing photoelectric signals;  
a clipping device disposed within the housing, the clipping device comprising a first guiding slot, the first guiding slot comprising a first plurality of electrically nonconductive channels;  
and  
an optical emitter having a first end connected to a first optical fiber to transmit optical signals to the first optical fiber and a second end having a first plurality of pins, the optical emitter being disposed within the first guiding slot of the clipping device and each of the first plurality

5                   of pins of the optical emitter being uniquely  
disposed within one of the first channels to guide  
each of the first plurality of pins to a  
predetermined location for electrical connection  
to the printed circuit board.

10                   The applicant is unable to locate text in the teachings  
of the prior art disclosing an optical transceiver module  
comprising a clipping device having nonconductive channels  
for guiding individual pins of the optical emitter to  
predetermined locations for connection to the printed  
circuit board. A different circuit board may have different  
connecting locations. Therefore, a prior art clipping  
device may require bending or reshaping of the pins before  
15                   insertion of the optical emitter into the clipping device  
in order to form proper connections with the circuit board.  
As stated in Paragraph 29 of the present application, the  
present invention does not require bending or reshaping  
of the pins because of the guiding action of the channels.  
20                   This increases the useful life of the pins.

25                   The examiner has noted that Berg et al (U.S. Patent  
5,980,324) additionally teaches a relevant connector.  
However, the "pins" therein disclosed are of a J-lead type  
(Col.4, lines 46-54) and are "arranged like seats in a stadium,  
with those seats closer to the playing field, i.e., closer  
to the field level, than those seats that are directly behind  
and further from the playing field." (Col.6, lines 7-10).  
Again, the prior art does not teach using channels to guide  
30                   and position the pins, only that the pins in the disclosure  
of Berg et al are pre-arranged to make proper contact with  
the circuit board.

The examiner has also noted that Kozel et al (U.S. Patent 6,264,481) disclose a transceiver socket mounted on a circuit board. Kozel et al further disclose the use of connecting pins 13 making electrical contact with pin receptacles 48 which in turn make electrical contact with respective circuits on the circuit board (Col. 6, lines 11-14). Unlike the receptacles of Kozel et al, the present invention nonconductive guiding channels merely position the pins for electrical connection but do not make or enforce the connection which is accomplished by clamping or soldering the pins to the printed circuit board. However, the channels eliminate the need for manually reshaping the pins to achieve proper positioning, increasing the useful life of the pins.

The applicant believes that the electrically nonconductive channels of the present disclosure provide a non-obvious, new, and useful feature, that of guiding and positioning the pins for correct attachment to the printed circuit board. The attachment procedure is normally completed by but not limited to soldering or clamping the pins to the printed circuit board. Therefore, consideration of new claim 12 is respectfully requested.

New claims 13-19 are dependent upon claim 12 and serve to further limit the scope of claim 12.

Claim 13 states that the clipping device comprises a second guiding slot, the second guiding slot having a plurality of nonconductive channels (Paragraph 28).

Claim 14 depends on claim 13 and states that the



transceiver module comprises an optical receiver connected to an optical fiber and having pins (Paragraph 27).

5        Claim 15 depends on claim 14 and states that the clipping device comprises a clamping device for clamping the pins to the printed circuit board (Paragraphs 30, 31).

      Claims 16 and 17 depend on claim 15 and each defines one type of clamping device claimed in claims 5 and 7 of the original application which have been allowed by the examiner after cited amendments.

10        Claims 18 and 19 depend on claim 12 but similarly to claims 16 and 17, reproduce the limitations of claims 5 and 7, which have been allowed by the examiner after cited amendments.

15        Therefore, new claims 13-19 are all supported in the original specification and are believed to represent non-obvious, new, and useful features of the disclosure. No new material has been introduced. Therefore, the applicant respectfully requests consideration of claims  
20        13-19.

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

In the claims:

- 5        1. (Amended) A transceiver module for a fiber optic  
communications system comprising:  
a housing;  
a connector for connecting with the housing;  
10        a printed circuit board (PCB) installed within the  
         housing for processing photoelectric signals;  
an optical sub assembly (OSA) installed within the  
connector for receiving or emitting optical signals,  
15        the optical sub assembly comprising an optical  
         emitter having a first end connected to an optical  
         fiber to transmit optical signals to the optical fiber,  
         and an optical receiver having a first end connected  
         to the optical fiber to receive optical signals from  
         the optical fiber, the optical emitter and the optical  
20        receiver each comprising a second end having a  
         plurality of pins to electrically connect to the  
         printed circuit board;  
         [a printed circuit board (PCB) installed within the  
         housing for processing photoelectric signals;] and  
25        a clipping device disposed within the housing for fixing  
         the optical sub assembly so that the optical sub  
         assembly is electrically connected with the printed  
         circuit board, the clipping device comprising  
         guiding slots for guiding the pins disposed therein  
30        to the printed circuit board and further comprising  
         clamping arms for clamping the pins of the optical  
         emitter and the optical receiver with the printed  
         circuit board to fix the pins on the printed circuit

board.

Please cancel claims 3-5.

- 5        6. (Amended) The transceiver module of claim 1 [4] wherein the pins are soldered or welded onto the printed circuit board.

Please cancel claim 7.

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8. (Amended) The transceiver module of claim 1 wherein the clipping device is formed of plastic material.

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9. (New) The transceiver module of claim 1 wherein each guiding slot comprises a plurality of nonconductive channels, each channel for guiding one of the pins to a predetermined position to connect to the printed circuit board.

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10. (New) A transceiver module for a fiber optic communications system comprising:

a housing;

a connector for connecting with the housing;

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a printed circuit board (PCB) installed within the

housing for processing photoelectric signals;

an optical sub assembly (OSA) installed within the connector for receiving or emitting optical signals,

the optical sub assembly comprising an optical

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emitter having a first end connected to an optical

fiber to transmit optical signals to the optical fiber,

and an optical receiver having a first end connected

to the optical fiber to receive optical signals from

the optical fiber, the optical emitter and the optical receiver each comprising a second end having a plurality of pins to electrically connect to the printed circuit board;

5 a clipping device disposed within the housing for fixing the optical sub assembly so that the optical sub assembly is electrically connected with the printed circuit board, the clipping device comprising guiding slots for guiding the pins to the printed  
10 circuit board; and

a clamping device having a clamping plate and a rod for inserting into a hole of the clipping device to clamp the printed circuit board between the plurality of pins and the clamping plate.

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11. (New) The transceiver module of claim 10 wherein each guiding slot comprises a plurality of nonconductive channels, each channel for guiding one of the pins to a predetermined position to connect to the printed  
20 circuit board.

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12. (New) A transceiver module for a fiber optic communications system comprising:

a housing;

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a connector for connecting with the housing;

a printed circuit board installed within the housing for processing photoelectric signals;

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a clipping device disposed within the housing, the clipping device comprising a first guiding slot, the first guiding slot comprising a first plurality of electrically nonconductive channels; and

an optical emitter having a first end connected to a

first optical fiber to transmit optical signals to the first optical fiber and a second end having a first plurality of pins, the optical emitter being disposed within the first guiding slot of the clipping device and each of the first plurality of pins of the optical emitter being uniquely disposed within one of the first channels to guide each of the first plurality of pins to a predetermined location for electrical connection to the printed circuit board.

13. (New) The transceiver module of claim 12 wherein the clipping device further comprises a second guiding slot, the second guiding slot having a second plurality of electrically nonconductive channels.

14. (New) The transceiver module of claim 13 further comprising an optical receiver having a first end connected to a second optical fiber to receive optical signals from the second optical fiber and a second end having a second plurality of pins, the optical receiver being disposed within the second guiding slot of the clipping device and each of the second plurality of pins of the optical receiver being uniquely disposed within one of the second plurality of channels to position each of the second plurality of pins in predetermined locations for electrical connection to the printed circuit board.

15. (New) The transceiver module of claim 14 wherein the clipping device further comprises a clamping device to fix the first and second plurality of pins on the printed circuit board.

5        16. (New) The transceiver module of claim 15 wherein the  
         clamping device comprises clamping arms for clamping  
         the first and second plurality of pins to the printed  
         circuit board.

10       17. (New) The transceiver module of claim 15 wherein the  
         clamping device comprises a clamping plate and a rod  
         for inserting into a hole of the clipping device to  
         clamp the printed circuit board between the first  
         plurality of pins and the clamping plate.

15       18. (New) The transceiver module of claim 12 wherein the  
         clipping device further comprises clamping arms for  
         clamping the first plurality of pins of the optical  
         emitter with the printed circuit board to fix the first  
         plurality of pins on the printed circuit board.

20       19. (New) The transceiver module of claim 12 further  
         comprising a clamping device having a clamping plate  
         and a rod for inserting into a hole of the clipping  
         device to clamp the printed circuit board between the  
         first plurality of pins and the clamping plate.

25       In the specification:

30       Please delete the second paragraph of the specification  
         section entitled "Summary of Invention" and replace the  
         deleted paragraph with the following paragraph.

         The claimed invention discloses a transceiver module

for an optical fiber communications system. The optical  
fiber communications system comprises a housing, a  
connector for connecting with the housing, an optical sub  
assembly (OSA) installed within the connector for receiving  
5 or emitting optical signals, a printed circuit board (PCB)  
installed within the housing for processing photoelectric  
signals, and a clipping device disposed within the housing  
for fixing the OSA so that the OSA is electrically connected  
with the PCB.

Sincerely yours,

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